

Task Force Comments on Michigan Department of Health and Human Services' Draft Protocol for Collecting Residential Drinking Water Samples for Lead Analysis.

EPA received the draft of Michigan DHHS's draft "Protocol for Collecting Residential Drinking Water Samples for Lead Analysis Flint's Residential" for comment from Jim Sygo, MDEQ, on November 18, 2015. Below are comments from EPA's Flint Safe Drinking Water Task Force.

Specific Comments

1. The document needs to be clear on the purpose for this sampling. Is the sampling trying to determine the contribution of lead in drinking water to elevated blood lead (EBL) levels? Is the sampling to determine the current exposure to lead in drinking water? In "Step 2 – Identify and Label the Sample Faucets", there is the instruction "If a temporary in-line filter is installed on the faucet, use the by-pass lever to collect unfiltered water samples. A whole house filter does not preclude sampling, as this is a permanent filter and representative of actual exposure."

If the sampling is to try to determine the contribution of lead in drinking water to an EBL level result, the resident needs to be asked whether a tap filter was in use and maintained during the period of exposure leading to the EBL result. This will determine whether the tap filter should be by-passed. There needs to be comprehensive characterization of both the actual ingested water for a given monitored child, and also in parallel, an assessment of the potential from the unfiltered water. Filters have finite lifetimes before replacement, and we don't know when they are exhausted and how that impacts the exposure of the individual.

If the sampling is to determine current exposure, then the tap filter should not be by-passed. There are other complexities with determining current exposure with the use of a tap filter. The investigators will need to question the residents about how often they are using the filter and how often they are using unfiltered water from that or other untreated taps in the house. There might even be a need to do a follow-up smaller set of samples taken through the filter to make sure it has been maintained and is still removing lead.

2. We suggest adding the following language to the last sentence of the introductory paragraph to make it clear that the interior plumbing and the service line are being evaluated for lead contributions: "The results will be used to evaluate human exposure to lead in household drinking water and to identify **all** plumbing components **from the home to the water main** that are contributing lead to household drinking water."

3. The drinking water samples from the kitchen faucet, including both the two 125-ml first-draw samples and the sequential 1-liter samples, should be collected **before** any small volume samples are taken from bathrooms. The two 125-ml samples from the bathroom faucets is water sitting in the faucet and a short segment of pipe under the sink. Taking the kitchen samples first shouldn't

affect this water. On the other hand, taking the bathroom samples first will draw water from the interior plumbing/service line, especially if multiple bathrooms are sampled.

4. The protocol indicates ten large volume sequential samples will be taken from the kitchen cold water faucet. Please be aware that the number of 1-liter samples to capture water from the sample tap to the water main will be different depending on the distance from the tap to the main and on the diameter of the pipes. Additional samples may need to be taken in certain situations, e.g., if the kitchen tap is at the back of the house; the water main is across the street from the house. A way to estimate the number of samples needed is: Estimate the distance from the front of the house to the water main. Divide that distance by 15 and round up to the nearest whole number. Add 4 to the result (for internal plumbing).
5. Wide-mouth bottles should be used for the 1-liter samples to allow the samples to be collected by opening the cold water faucet gently but fully in order to be consistent with how the resident would fill a glass or pot with water.
6. In the section “Before the EBL Inspection” where information is being gathered about the house, we suggest also identifying/photographing any street work that has been done in front of the house (i.e., physical disturbances). This can be road work, water main work, other utility work, etc.
7. In “Step 3 – Collect the Small Volume Samples”, the instructions state do not remove the aerator if there is one, but make a note if one is present. We suggest checking the aerator for particles after the water samples have been taken.
8. In “Step 4 – Collect the Large Volume Samples: Sample collection”, We suggest the following language for #1: “Place the A1 bottle under the faucet, open the **cold water** faucet **gently but fully** ~~to produce a moderate, steady stream~~ and fill the first bottle to the appropriate level. Immediately fill bottles A2 to A10 consecutively without a break in the stream (do not turn off the faucet between bottles and do not allow water to run down the drain between the bottles).